UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/037,460	03/10/1998	GREGG A. HASTINGS	325800-626(P	7163

22195 7590 06/29/2004

HUMAN GENOME SCIENCES INC
INTELLECTUAL PROPERTY DEPT.
14200 SHADY GROVE ROAD
ROCKVILLE, MD 20850

EXAMINER	
SAOUD, CHRISTINE J	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/037,460	HASTINGS ET AL.	
	Examiner	Art Unit	
	Christine J. Saoud	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *54-67,75-92,102-107,115-119 and 122-175* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *54-67,75-92,102-107,115-119 and 122-175* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 54-67, 75-92, 102-107, 115-119, and 122-175 are pending in the instant application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Any objection or rejection of record which is not expressly repeated in this action has been overcome by Applicant's response and withdrawn.

Applicant's arguments filed 25 June 2003 have been fully considered but they are not deemed to be persuasive.

Claim Rejections - 35 USC § 101

Claims 54-67, 75-92, 102-107, 115-119 and 122-175 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to an invention with no apparent or disclosed specific and substantial credible utility for the reasons of record in the previous Office actions.

Applicant asserts that the specification "discloses several biological roles for the VIGF protein" and points to pages 4, 19 and 28 of the specification. For clarification, the assertions in the specification are that the claimed invention encodes for a polypeptide which is structurally related to cef 10/cyr 61, connective tissue growth factor, and nov, as well as insulin-like growth factor binding proteins. The mRNA is highly expressed in vascular cell-types and therefore, Applicant named the protein human vascular IBP-like growth factor or VIGF (see page 1 of the specification). Biological roles which are referred to in

the specification are predictions of biological activity based on the structural similarity of the disclosed protein with two distinct protein families and also based on the tissue expression of the mRNA which encodes the disclosed protein. There is no experimental data provided in the instant specification which confirms or supports any of the asserted utilities alleged for the claimed invention.

Applicant argues at page 2 of the response that the Aitkenhead et al. reference demonstrates a correlation between VIGF expression and tumor angiogenesis. Applicant further asserts that 5 out of 14 samples demonstrate a significant increase in VIGF expression in kidney tumor tissue relative to normal kidney tissue. Applicant additionally asserts that the reference discloses similar correlations in tomrs from breast, uterus, stomach and rectum (see page 3 of the response). Therefore, Applicant asserts that the reference supports the assertion that the claimed invention could be used as a diagnostic marker for neovascularization and cancer.

This argument is not persuasive. The Aitkenhead et al. reference does not support a conclusion that the claimed invention would be a marker for neovascularization and cancer because the reference also teaches that the expression of the claimed invention "appeared to be somewhat higher in normal tissue in other samples" (see page 165, column 2, lines 6-9). Therefore, in some tissues, the claimed invention may be a marker for neovascularization or cancer, but in other tissues it is not because it is higher in the normal tissue than in other tissues. Therefore, use of the claimed invention as a diagnostic marker for neovascularization and cancer is not substantial at the time the instant

application was filed because further research is necessary to determine in which tissues the claimed invention would be a diagnostic marker, and in which tissues it is not. Additionally, although one may conclude from Aitkenhead et al. that the claimed invention may play a role in renal cancer, this utility is not disclosed because the instant specification makes no mention of renal cancer. And lastly, the correlation of VIGF with VEGF demonstrated by the reference is interesting and may be supportive of a role of the claimed invention in vascularization, but this relationship is not disclosed in the instant specification, nor is it even suggested.

Applicant states as "long as VIGF can be used to detect tumor neovascularization as asserted in the specification, then the utility requirement is satisfied" (see page 3 of the response). However, based on the teachings of Aitkenhead et al., just the presence of VIGF is not sufficient to establish the presence of a tumor because VIGF is also expressed in high levels in normal tissues. Therefore, the skilled artisan would need to know in what tissues the claimed invention would be useful as a diagnostic. Clearly, based on the reference, it is not going to be diagnostic in all tissues, therefore, the asserted utility is not substantial at the time the invention was filed.

Applicant asserts at the bottom of page 3 of the response that "the Examiner appears to find Aitkenhead deficient because the reference does not disclose a molecular mechanism that links VIGF to angiogenesis". However, this was not the intent of the Examiner. The mechanism of action of the claimed invention is not required for establishing utility for the claimed invention.

Applicant at page 4 of the response refers to a new reference, van't Veer et al. (Nature 415: 530-536, 2002) which demonstrates that the claimed invention is upregulated in breast cancers with poor prognosis signatures. While this data is significant, it still does not remedy the deficiencies of the instant specification. The instant specification makes no mention to use of the disclosed polynucleotides for diagnosing breast cancer. There is no disclosure in the instant specification that would lead the skilled artisan to the conclusion that an increase in expression of the claimed invention would be diagnostic for breast cancer over any other condition because the assertions in the specification are general, non-specific, and not supported by any evidence which would confirm any particular asserted biological activity attributed to the encoded protein. At the time the invention was filed, the specification also asserted that the encoded protein was similar to IGF binding proteins; it was assumed just as likely that the encoded protein possessed some function of the insulin binding protein family. Regardless, the instant specification does not support a utility of the claimed invention being a marker for breast cancer because the instant specification does not assert this utility.

Applicant asserts at page 4 of the response that "VIGF expression is elevated in six unrelated cancers based on the teachings of Bechard et al. and Aitkenhead et al." First, Bechard et al. teaches elevation of the claimed invention in lung cancer (not disclosed in the specification), but also in sepsis. Secondly, the only cancer disclosed by Aitkenhead et al. in which the claimed invention could be considered a diagnostic would be renal cancer. The instant

specification fails to disclose use of the claimed invention for diagnosis of renal cancer. The presence of the claimed invention in the other cancerous tissues is noted, however, the claimed invention was also present in normal tissues as well. If they only measurement made was the expression level of the claimed invention in a patient, one of skill in the art would not be able to make a conclusion or diagnosis because the specification does not provide the relevant information to make a conclusion. Based on the teachings of Bechard et al. and Aitkenhead et al. , the patient may have renal cancer, lung cancer, sepsis, or be perfectly normal.

The Edwards et al. reference and the SEER Cancer Statistics Review article are noted. However, they do not speak to the claimed invention in that they do not a correlation of the claimed invention with cancer and do not support the asserted utility of the instant specification.

At page 5 of the response, Applicant argues that elevation of the claimed invention in sepsis does not preclude the use of the claimed invention for the diagnosis of cancer. However, utility and enablement are judged at the time the invention was filed. The specification asserts that the claimed invention is diagnostic for cancer. However, the claimed invention is elevated in a number of conditions, normal or disease in nature, and the instant specification fails to provide the necessary information for a person in the art to use the claimed invention in a diagnostic manner. If a patient were to go in for a routine physical and blood was drawn and screened for a number of different agents, would an elevation in the claimed invention be indicative of any particular condition? No.

If tissue from an individual was examined for expression of different nucleic acids, would the expression of the claimed invention be diagnostic for cancer? That is not clear from the teachings of the specification in light of the references supplied by Applicant. The claimed invention can be elevated in some tissues; however, some of the tissues are normal and some are cancerous. The instant specification lacks the necessary disclosure to make the asserted utility substantial so that the skilled artisan would be able to use the invention without further research. Therefore, the instant application fails to provide a specific, substantial and credible utility for the claimed invention.

Claims 54-67, 75-92, 102-107, and 115-119, and 122-175 are rejected under 35 U.S.C. 112, first paragraph, as failing to adequately teach how to use the instant invention for those reasons given above with regard to the rejection of these claims under 35 U.S.C. 101 for the reasons of record in the previous Office actions.

Applicant argues that because the invention has utility, then this rejection should be withdrawn as well. This argument is not persuasive for the reasons provided above, and therefore, is maintained.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine J. Saoud whose telephone number is 571-272-0891. The examiner can normally be reached on mttr, 8:00-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on 571-272-0887. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CHRISTINE J. SAOUD
PRIMARY EXAMINER

Christine J. Saoud